PET FEEDER WITH NODEMCU USING MOBILE APPLICATION

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SUPERVISOR'S DECLARATION

I hereby declare that I have checked this project, and, in my opinion, this project is adequate in terms of scope and quality for the award of the degree of Bachelor of Computer Science (Computer Systems & Networking).

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STUDENT'S DECLARATION

I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

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ABSTRAK

Pada masa kini, haiwan peliharaan dianggap sebagai teman hidup. Walau bagaimanapun, mengurus haiwan peliharaan kadangkala adalah tugas yang berat untuk pemiliknya terutama apabila tiada seorang pun di rumah. Kebanyakan pemilik haiwan kesayangan tidak boleh tinggal di rumah setiap kali untuk memberi makan haiwan mereka dengan kerap, namun haiwan kesayangan mereka perlu diberi makan sepanjang hari. Oleh itu, dengan pembangunan Pemberi Makanan Haiwan menggunakan NodeMCU dan Aplikasi Mudah Alih akan mengatasi masalah ini. Sistem ini akan membantu dan membenarkan pemilik dari jauh memberi makan haiwan mereka pada masa tertentu tanpa perlu hadir di lokasi pemakanan. Bagi membangunkan system ini, kaedah yang digunakan ialah Air Terjun Iteratif. Kaedah ini dibahagikan kepada empat fasa bermula dari Analisis Keperluan, Reka Bentuk, Pelaksanaan dan Pengujian. Metodologi Air Terjun Iteratif akan menghasilkan perisian yang berfungsi dengan cepat dan awal dalam perisian kitaran hayat Seterusnya, haiwan kesayangan dapat menikmati makanan mereka tanpa kehadiran pemilik sementara pemilik dapat menikmati kerja dan perjalanan tanpa perlu khuatir tentang memberi makan haiwan peliharaan mereka. Projek ini berjaya di bangunkan yang membolehkan pemilik memberi makanan haiwan mereka jauh dari rumah dan haiwan peliharaan dapat menikmati makanan pada waktu yang tepat.

ABSTRACT

Nowadays, pets are considered as a life companion. However, managing pets sometimes is such a nuisance task for the owner especially when no one is at home. Most pet owners cannot stay at home every time to feed their pet regularly, yet their pets need to be fed throughout the day. Therefore, with a development of Pet Feeder with NodeMCU using Mobile Application will overcome this problem, this system will assist and allow owner to remotely feed their pets at a specific time without having to present at the feeding location. Iterative Waterfall method has been used to develop this system. This method is divided into four phases starting from Requirement Analysis, Design, Implementation and Testing. Iterative waterfall methodology will produce software that works quickly and early in the life cycle software. Next, pets can have their food without the present of owners while owners can enjoy works and travelling without having worries about feeding their pets. This project has been successfully developed which enable owners to feed their pets remotely away from home and pets gets food at the right time.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

PWM	Pulse Width Modulation
GPIO	General-Purpose Input Output
RM	Ringgit Malaysia
DC	Duty Cycle
MQTT	Message Queuing Telemetry Transport
RFID	Radio-frequency Identification
JSON	JavaScript Object Notation
SSL/TLS	Secure Sockets Layer / Transport Layer Security
IOS	iPhone OS
CPU	Central Processing Unit
PIC	Peripheral Interface Controller
V	Voltage
GPRS	General Packet Radio Service
GSM	Global System for Mobile communications
QFN	Quad-Flat No-Leads
OS	Operating System
RAM	Random-Access Memory
TB	Terabyte
HDD	Hard Disk Drive
IDE	Integrated Development Environment
DFD	Data Flow Diagram

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Cats are the most popular pets (Hodgson & Barton, 2015) among other animal where people having them as a companion in daily life. There are many types of cats in this world, such as British Short Hair, American Short Hair, Bengal cat, Persian cat and many more. Number of cats that being pet are increase from day by day especially in Malaysia.

Many commitments are requested to keep pets while there are families do not always have the right knowledge to manage them (Russo, Vergnano, Bergero, & Prola, 2017). Part of it are concern, keeping them company, and the important one is feeding pets in the right way and on the time. However, taking care of pet's diet can be hard and time consuming because not everyone is a pet expert. One of the top health concerns of pets are overeating and obesity. Just as in humans, excessive fat in pets increases the risk of often-preventable health conditions (Increase et al., 2015). Especially at younger age, they are usually satisfied with whatever much is given to them.

Pet Feeder with NodeMCU using Mobile Application is the system that can help the pet's owner to feed their pet either using mobile application or manual feeding. This system also has function that can feed pet, schedule feed, save pets name and check the quantity of food left on the container.

1.2 PROBLEM STATEMENT

In this globalization era, people are tending to spend most of their plenty time outside their house. A companion like a pet are seem needed in our daily life as a stress takes a toll on our life. Such an irony, a pet can company their owner and fulfil their need, but the owners themselves are not able to prepare their pets' priority such as food and water. Pet owners had been facing with the problem due to how they can feed their pet properly when they are not at home.

Pet owners are being warned that having a pet means they have contributed extra commitment to give the best support and care to them. Based on industry revenue, there are increasing demand in Asian markets for quality pet food (Balzer, 2015). Unfortunately, there are certain pet owners did not have much energy or time to fulfil their pets' food because owners might not always be at home regularly. Their personal plan is like travelling and working, will cause them dilemma. The dilemma deal by the pet owners can tend to unforeseen animal abuse due to lack of feeding. Other than that, pet owners may find themselves making troubling their families and friends to babysit their pet while they are away, which manage be unsuited after some haunt requests.

The Pet Feeder with NodeMCU using Mobile Application will be able to help both owners and their pets happy. It is designed to make sure the problem that all pet owners are facing will be ended. It may provide awareness to pet owners of its advantages and feasibility in the future, with the opportunity that similar Pet Feeder with NodeMCU using Mobile Application are not common in Malaysia.

1.3 OBJECTIVE

Goals that are intended to be achieved on this project is to develop a Pet Feeder with NodeMCU using Mobile Application. The main objective are the specific actions that need to be achieved on this research which deeply focus on aspect as below:

(i) To investigate the existing product of pet feeding.

(ii) To design Pet Feeder with NodeMCU using Mobile Application.

(iii) To evaluate the performance of the Pet Feeder with NodeMCU using Mobile Application.

1.4 SCOPE

Scope is a principal element to make sure this project achieves their objective. Moreover, scope of this project has been agreed upon discussion. The agreed scope of this projects is:

(i) User Scope:

For the user scope, it was limited for the cat only. It is because Pet Feeder with NodeMCU using Mobile Application must be tested on the pet, and the only pet that available to be testes are cat only.

(ii) Function available:

a. Manual feeding

Pet owner can feed their pet manually when they are in the home with only pressing the button on Pet Feeder.

b. Automatic feeding.

Pet owner can feed their pet automatically when they are not in the home using mobile application.

c. Schedule feeding.

Pet owners can feed their pet schedulable when there are in or not in the home to prevent from forget to feed them.

1.5 REPORT ORGANIZATION

This project consists of five chapters. Chapter 1consist of introduction about this project and continue with the problem statement which identified where it leads to the development of the solution system discusses on the project. Then, it will follow with the objective of this project. Lastly is the scope and thesis organization about this project.

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